Please amend Claim 1 as follows:

1. (Amended) A driver having a current control device for a voice coil motor in a

disk drive, comprising:

a sensor to sense a coil current in said voice coil motor;

a transconductance amplifier to detect an error current by comparing said coil

5 current and a command current; and

a compensator to integrate said error current into said coil current.

Please amend Claim 12 as follows:

12. (Amended) The driver of claim 1, wherein said transconductance amplifier

includes a first input and a second input, such that said coil current is coupled to the first

input of the transconductance amplifier, and said command current is coupled to the

second input of the transconductance amplifier, wherein the transconductance amplifier

5 detects said error current by determining the difference between the coil current and the

command current.

Please amend Claim 13 as follows:

13. (Amended) The driver of claim 11, wherein said compensator is coupled

to a gain buffer.

[Please amend Claim 14 as follows:]

14.   (Amended) A method for tracking a disk using a voice coil motor coupled to a driver, comprising:

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sensing a coil current in said voice coil motor;

determining an error current by comparing said coil current and a command

5   current; and

integrating said error current into said coil current.

Please cancel Claim 19 without prejudice to, or disclaimer of, the subject matter contained therein.

Please amend Claim 27 as follows:

27.   (Amended) The current control device of claim 23, further comprising a

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current sense amplifier coupled between said sensor and said compensator to amplify a

voltage across said sensor.

Please amend Claim 29 as follows:

29.   (Amended) A driver having a current control device for a voice coil

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motor, comprising:

an amplifier to drive said voice coil motor with a coil current, said coil current

flows from one terminal of said voice coil motor to another terminal, wherein both

5   terminals are coupled to said driver;

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a sensor to sense said coil current in said voice coil motor, wherein said sensor is coupled between said amplifier and said voice coil motor;

a current sense amplifier to amplify a voltage across said sensor, wherein said voltage correlates to said coil current;

a transconductance amplifier coupled to said current sense amplifier to receive said voltage and a command current, wherein said transconductance amplifier calculates an error current by comparing the sense current with the command current;

an integrator coupled to said transconductance amplifier to integrate said error current into said command current to determine said coil current.

Please add the following new claims:

64. (New) A driver having a current control device for a voice coil motor in a disk drive, the voice coil motor having a first coil motor and a second coil motor coupled in series such that a coil current flows through both coil motors, comprising:

a sensor to sense a coil current in said voice coil motor;

a transconductance amplifier to detect an error current from said coil current and a command current; and

a compensator to integrate said error current into said coil current.

65. (New) The driver of claim 64, further comprising a force couple created by said current in said voice coil motor.

66. (New) The driver of claim 64, further comprising a current sense amplifier coupled to said transconductance amplifier to amplify a voltage across said sensor.

67. (New) The driver of claim 64, wherein said compensator includes a capacitor.

68. (New) The driver of claim 67, wherein said compensator includes a resistor.

69. (New) The driver of claim 64, further comprising a driver amplifier to supply said coil current, said driver amplifier coupled to said compensator.

70. (New) The driver of claim 64, wherein said sensor includes a sense resistor.

71. (New) The driver of claim 64, wherein said command current is received at said driver from a microcontroller.

72. (New) The driver of claim 64, further comprising said compensator coupled to said transconductance amplifier, said compensator including a capacitor.

73. (New) The driver of claim 64, wherein said compensator is coupled to a gain buffer.

74. (New) A driver having a current controller for a voice coil motor in a seek mode, the voice coil motor having a first coil motor and a second coil motor coupled to a center tap, comprising:

a set of transistors coupled to said voice coil motor by said center tap, said set of transistors to supply a coil current having a waveform to said center tap;

a current sense amplifier to detect said coil current;

a comparator to shape a command current waveform to said coil current waveform; and

a bipolar switch control to receive said command current waveform and to saturate said set of transistors.

75. (New) The driver of claim 74, wherein said first coil has a first current and said second coil motor has a second current.

76. (New) The driver of claim 75, wherein said coil current is the sum of said first current and said second current.

77. (New) The driver of claim 74, when said set of transistors includes a first transistor and a second transistor.

78. (New) The driver of claim 74, wherein said set of transistors includes dynamic MOS transistors.

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79. (New) The driver of claim 74, wherein said command current waveform has a duty cycle such that said bipolar switch control is turned on and off according to said duty cycle.

80. (New) The driver of claim 74, wherein said command current is received from a microcontroller.

81. (New) A current control device within a driver for controlling a voice coil motor to seek a track on a storage media, comprising:

a coil current supplied to said voice coil motor along a center tap coupled to said driver, wherein said center tap supplies a first coil motor current and a second coil motor

5   current to a first coil motor and a second coil motor within said voice coil motor, such that coil current is about equal to the sum of said first coil current and said second coil current; and

a comparator to shape a waveform of a specified command current in accordance with a waveform of said coil current, wherein said command current drives a bipolar

10   switch coupled to said center tap.

82. (New) The current control device of claim 81, further comprising a current sense amplifier to detect said coil current within said voice coil motor.

83. (New) The current control device of claim 81, further comprising a set of transistors coupled to said bipolar switch and said center tap, wherein said set of transistors are turned on and off to supply current to said center tap.

84. (New) A driver for controlling a voice coil motor during a retract mode, said voice coil motor having a first coil motor and second coil motor, comprising:

a sensor to sense a velocity voltage across said second coil motor;

an error amplifier to calculate a differential between said velocity voltage and a command voltage;

a differential amplifier coupled to said error amplifier, wherein said differential amplifier detects said velocity voltage across said sensor; and

a retract amplifier to compensate said command voltage with said differential.

85. (New) The driver of claim 84, wherein said retract amplifier is coupled to said compensator, wherein said retract amplifier drives said first coil motor at said command voltage.

86. (New) The driver of claim 85, wherein said retract amplifier receives said command voltage from said compensator, and supplies a current to said first coil motor.

87. (New) The driver of claim 85, further comprising a set of transistors coupled to said retract amplifier.

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88. (New) The driver of claim 84, wherein said first coil motor comprises coil windings.

89. (New) The driver of claim 84, wherein said second coil motor comprises coil windings.

90. (New) The driver of claim 84, wherein said retract amplifier is turned on and off.

91. (New) A driver for controlling a voice coil motor during a retract mode, said voice coil motor having a first coil motor and second coil motor, comprising:

a sensor to sense a velocity voltage across said second coil motor;

an error amplifier to calculate a differential between said velocity voltage and a command voltage; and

a retract amplifier to compensate said command voltage with said differential, wherein said retract amplifier is coupled to said compensator and wherein said retract amplifier drives said first coil motor at said command voltage.

92. (New) The driver of claim 91, wherein said retract amplifier receives said command voltage from said compensator, and supplies a current to said first coil motor.

93. (New) The driver of claim 91, further comprising a set of transistors coupled to said retract amplifier.

94. (New) The driver of claim 91, wherein said first coil motor comprises coil windings.

95. (New) The driver of claim 91, wherein said second coil motor comprises coil windings.

96. (New) The driver of claim 91, wherein said retract amplifier is turned on and off.

97. (New) A method for controlling a voice coil motor having a first coil motor and a second coil motor with a driver during a retract mode, comprising:

detecting a velocity voltage with said second coil motor using a differential amplifier coupled to the second coil motor;

determining a differential voltage between said velocity voltage and a command voltage; and

compensating said command voltage with said differential voltage.

98. (New) The method of claim 97, further comprising applying a current correlating to said command voltage to said first coil motor.

99. (New) The method of claim 97, wherein said compensating step includes using a retract amplifier coupled to said voice coil motor.

100. (New) The method of claim 99, further comprising saturating a set of transistors to supply a current from said retract amplifier to said voice coil motor.

All

101. (New) The method of claim 99, further comprising turning said retract amplifier on and off.